

IN THE CLAIMS:

Rewrite the pending claims as follows:

1-7. (Canceled)

8. (Currently Amended) A method of determining characteristics of a cantilever for use in ~~using~~ cantilever-based instruments, comprising:

measuring a drag force acting on a cantilever by monitoring a deflection of the cantilever;

determining a power spectrum of the cantilever;

measuring motion of a base of the cantilever; and

determining one or more characteristics of the cantilever based on the motion of the base, the power spectrum, and the cantilever deflection.

9. (Previously Presented) The method as claimed in claim 8, including applying the drag force by directing a fluid flow over the cantilever; and

the determining characteristics includes determining a fluid flow rate of the fluid flow.

10. (Previously Presented) The method as claimed in claim 9, wherein the determining the fluid flow rate includes determining the fluid flow rate based at least in part on a spring constant and dampening constant of the cantilever.

11. (Previously Presented) The method as claimed in claim 10, wherein applying the drag force includes oscillating the cantilever;

the monitoring the deflection includes monitoring the deflection of the cantilever while oscillating;

the determining characteristics includes determining a hysteresis of the deflection of the cantilever as a function of position of the base of the cantilever.

12. (Currently Amended) The method as claimed in claim 8, wherein the monitoring the deflection includes determining a ~~hysteretic~~ hysteresis of deflection of the cantilever and monitoring the hysteresis; and

the determining characteristics includes determining a distance between the cantilever tip and the surface.

13. (Currently Amended) The method as claimed in claim 8, wherein the applying the drag force includes oscillating the cantilever;
the monitoring the deflection includes monitoring the deflection of the cantilever while oscillating the cantilever; and
the determining characteristics includes determining a spring constant based at least in part on a the power spectrum associated with the cantilever.
14. (Previously Presented) The method as claimed in claim 13, wherein the monitoring the deflection further includes determining a hysteresis of deflection of the cantilever and monitoring the hysteresis; and
the determining characteristics includes determining a distance between the cantilever tip and the surface based at least in part on the hysteresis.
15. (Currently Amended) An apparatus for determining cantilever parameters, comprising:
means for measuring a drag force acting on a cantilever by monitoring a deflection of the cantilever;
means for determining a power spectrum of the cantilever;
means for measuring motion of a base of the cantilever; and
means for determining one or more characteristics of the cantilever based on the motion of the base, the power spectrum, and the cantilever deflection.
16. (Previously Presented) The apparatus of claim 15, including means for directing a fluid flow over the cantilever;
wherein the means for determining characteristics includes means for determining a fluid flow rate of the fluid flow.
17. (Canceled)
18. (Currently Amended) The apparatus of claim 15, including means for oscillating the cantilever;
wherein:
the means for monitoring the deflection is configured to monitor the deflection of the cantilever while oscillating; and

the means for determining characteristics includes a means for determining a spring constant based at least in part on the a the power spectrum associated with the cantilever.

19. (Previously Presented) The apparatus of claim 18, wherein the means for monitoring the deflection includes means for determining a hysteresis of deflection of the cantilever and for monitoring the hysteresis; and

the means for determining characteristics is further configured to determine a distance between the cantilever tip and the surface based at least in part on the hysteresis.

20. (Previously Presented) The apparatus of claim 16, wherein the means for determining the fluid flow rate is configured to determine the fluid flow rate based at least in part on a spring constant and dampening constant of the cantilever.

21. (Previously Presented) The apparatus of claim 20, including means for oscillating the cantilever;

wherein:

the means for monitoring the deflection is configured to monitor the deflection of the cantilever while oscillating;

the means for determining characteristics is configured to determine a hysteresis of the deflection of the cantilever as a function of position of the base of the cantilever.

22. (Previously Presented) The apparatus of claim 15, wherein the means for monitoring the deflection is configured to determine a hysteresis of deflection of the cantilever and to monitor the hysteresis; and

the means for determining characteristics is configured to determine a distance between the cantilever tip and the surface.

23. (Previously Presented) The apparatus of claim 15, wherein the means for monitoring the deflection is configured to determine a hysteresis of deflection of the cantilever and to monitor the hysteresis; and

the means for determining characteristics is configured to determine dissipation between the cantilever tip and the surface in accordance with the hysteresis of deflection of the cantilever.

24. (Previously Presented) The method of claim 13, wherein the monitoring the deflection further includes determining a hysteresis of deflection of the cantilever and monitoring the hysteresis; and

the determining characteristics includes determining dissipation between the cantilever tip and the surface in accordance with the hysteresis of deflection of the cantilever.